

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1.(currently amended) A deep tillage point structure adapted for connection to an upright shank for forward movement through a compacted layer of soil, the point structure comprising: a main body having a fore-and-aft extending leading nose with a front surface which extends upwardly and rearwardly from a nose leading edge for initiating fracture of the compacted layer, a tapered top surface extending rearwardly and upwardly from the front surface, the tapered top surface including outwardly facing surfaces extending downwardly from an apex, the apex extending from adjacent the nose leading edge and terminating in an apex aft end at a central fore-and-aft location on the main body, the surfaces forming an included angle at the apex and causing an initial parting stress of the fractured compacted layer as soil moves rearwardly along a length of the apex to an uppermost rear portion of the apex adjacent the upright shank, wherein the length of the apex is substantially greater than a distance equal to a maximum height of the apex above the nose leading edge and the included angle is obtuse substantially the entire length of the apex and approximately 100 degrees adjacent an the aft portion end of the apex to facilitate soil parting by the upright shank in the initially stressed fractured compacted layer, and wherein wings include forwardmost portions located adjacent behind the aft portion end of the apex.

Claim 2 (previously canceled)

Claim 3 (original): The point structure as set forth in claim 1 including a shin member extending vertically from an aft portion of the nose, the shin member having a sharp leading edge for parting the compacted layer as the soil moves rearwardly past the nose.

Claim 4 (original): The point structure as set forth in claim 3 wherein the leading edge of the shin member defines an included angle of less than 45 degrees.

Claim 5 (original): The point structure as set forth in claim 4 wherein the

included angle is approximately 30 degrees.

Claim 6 (currently amended): ~~The point structure as set forth in claim 1~~  
A deep tillage point structure adapted for connection to an upright shank for forward movement through a compacted layer of soil, the point structure comprising: a main body having a fore-and-aft extending leading nose with a front surface which extends upwardly and rearwardly from a nose leading edge for initiating fracture of the compacted layer, a tapered top surface extending rearwardly and upwardly from the front surface, the tapered top surface including outwardly facing surfaces extending downwardly from an apex, the surfaces forming an included angle at the apex and causing an initial parting stress of the fractured compacted layer as soil moves rearwardly along a length of the apex to an uppermost rear portion of the apex adjacent the upright shank, wherein the length of the apex is substantially greater than a distance equal to a maximum height of the apex above the nose leading edge and the included angle is obtuse substantially the entire length of the apex to facilitate soil parting by the upright shank in the initially stressed fractured compacted layer, and wherein wings include forwardmost portions located adjacent the aft portion of the apex, and wherein the main body has a bifurcated attaching area adapted to receive a lower mounting end of the shank, the bifurcated end having walls with a thickness of at least one half an inch and including apertures for receiving mounting bolt structure with bolt ends having end diameters recessed within the apertures, wherein the apertures have diameters greater than the bolt end diameters for retaining the shank body without tightening of the the bolt ends directly against the attaching area, the wall thickness and aperture diameter to prevent preventing the moving soil from wearing the mounting bolt structure.

Claim 7 (original): The point structure as set forth in claim 6 wherein the main body is cast from carbidic austempered ductile iron and the thickness of the walls at the apertures is sufficient to prevent brittleness in the walls.

Claim 8 (original): The point structure as set forth in claim 3 wherein the outwardly facing surfaces extend rearwardly past the sharp leading edge to help move the soil outwardly from the shank.

Claim 9 (currently amended): A deep tillage point structure including upright shank structure having a leading edge and movable forwardly through a compacted layer of soil, the point structure including a main body having a fore-and-aft

extending leading nose with a front surface which extends upwardly and rearwardly from a nose leading edge for initiating fracture of the compacted layer, a tapered top surface extending rearwardly and upwardly from the front surface, the tapered top surface including outwardly facing surfaces extending downwardly from an apex, the apex extending from adjacent the leading nose to an aft end at a central portion of the main body portion, the surfaces forming an included angle at the apex and causing a lifting of the fractured compacted layer as soil moves rearwardly along a length of the apex to an uppermost rear portion of the apex adjacent the leading edge of the upright shank structure, and further comprising wings having leading edges located substantially entirely behind the ~~rear portion~~ aft end of the apex and extending outwardly from the body rearwardly adjacent the nose and below the aft end of the apex for entering a fracture area initiated by the front surface, wherein substantial portions of the wings lie behind the leading edge of the upright shank and enter an area of the soil below the fractured compacted layer to thereby reduce draft entry of the wings.

Claim 10 (original): The point structure as set forth in claim 9 wherein the wings have a lift angle between 15 and 25 degrees.

Claim 11 (original): The point structure as set forth in claim 9 wherein the wings slope downwardly in an outward direction at an angle less than 15 degrees.

Claim 12 (original): The point structure as set forth in claim 11 wherein the wings slope downwardly at an angle of approximately 7 degrees.

Claim 13 (original): The point structure as set forth in claim 9 wherein the wings have a wing width of less than 12 inches and greater than 9 inches.

Claim 14 (original): The point structure as set forth in claim 9 wherein the wings have leading edges angled rearwardly at an acute angle relative to a vertical plane extending perpendicular to a forward direction of travel of the point structure.

Claim 15 (previously amended): The point structure as set forth in claim 13 wherein the wings have leading edges spaced rearwardly from the nose leading edge about 10 inches.

Claim 16 (previously amended): A deep tillage point structure adapted for connection to an upright shank for forward movement through a compacted layer of soil, the point structure comprising: a main body having a fore-and-aft extending leading nose, the nose having a leading nose edge and a top surface for initiating

fracture of the compacted layer of soil, the top surface extending between the leading edge and an aft portion, upright parting shin structure supported by the aft portion for parting the layer of soil, the shin having a forward soil-parting edge, and outwardly extending wings supported by the main body below the top surface for entering a fracture area initiated by the nose, wherein the wings have leading wing edges located entirely rearwardly of a forwardmost portion of the forward soil-parting edge and below the top surface, the leading wing edges located near a lowermost extremity main body so the wings enter the soil at a level just above a level of entry of the leading nose edge and initiate a second fracture of the compacted layer.

Claim 17 (original): The point structure as set forth in claim 16 wherein the top surface is tapered, the tapered top surface including outwardly facing surfaces extending downwardly from an apex, the outwardly facing surfaces forming an included obtuse angle at the apex adjacent the aft portion and causing a parting stress of the fractured compacted layer as soil moves rearwardly along the top surface.

Claim 18 (original): The point structure as set forth in claim 16 wherein the wings have lift angles of between 15 and 25 degrees.

Claim 19 (original): The point structure as set forth in claim 18 wherein the wings have a downward slope in an outward direction, the downward slope being in the range of 0 to 15 degrees.

Claim 20 (previously amended): The point structure as set forth in claim 16 wherein the leading wing edges are spaced substantially rearwardly of the nose edge and enter fractured soil.

Claim 21 (original): The point structure as set forth in claim 16 wherein the aft portion includes a bifurcated portion received over the shank and bolt structure extending through the bifurcated portion, wherein the wings include leading wing edges located adjacent the bolt structure.

Claim 22 (original): The point structure as set forth in claim 16 wherein the wings have lift angles of between 15 and 25 degrees, a downward slope in the outward direction between 0 and 15 degrees, and aft edges terminating forwardly adjacent an aft edge of the shank so that soil lifted by the wings can drop directly into a slot formed behind the shank.

Claim 23 (original): The point structure as set forth in claim 22 wherein the

width of the nose is approximately 1.75 inches and the length of the nose from the leading edge to the parting shin structure is at least 7 inches.

Claim 24 (original): The point structure as set forth in claim 23 wherein the wings have a total wing width of greater than 9 inches.